

PATENT ABSTRACTS OF JAPAN

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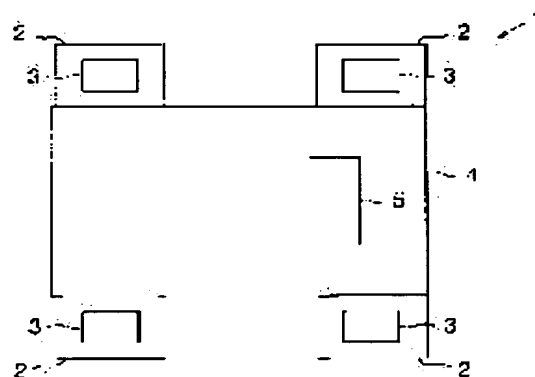
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(54) TIRE STATE MONITORING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a tire state monitoring device capable of correctly registering the identification data of a transmitter to a receiver.

SOLUTION: A commander transmits command signals including a channel code set by its own channel code setting switch. When the transmitter 3 receives command signals from the commander, the transmitter 3 transmits a reaction signal including a channel code included in the command signals accordingly and an ID code inherent in the transmitter 3. The receiver 5 receives reaction signals from the transmitter 3. When a channel code included in the reaction signal is related with the channel code set by its own channel code setting switch, the receiver 5 stores the ID code included in the reaction signals.



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CLAIMS

[Claim(s)]

[Claim 1] With the commander who transmits the command signal which is equipped with the 1st selector which chooses the 1st one channel code from two or more 1st mutually different channel codes, and contains the 1st selected channel code It is the transmitter formed in the tire of a car, and this transmitter is equipped with the tire condition sensor which detects the condition of a tire. A transmitter According to receiving said command signal, the reaction signal containing the discernment data of the proper given to the 1st channel code and transmitter which are contained in a command signal is transmitted, It is the receiver formed in the car body of said car. This receiver It has the 2nd selector which chooses the 2nd one channel code from two or more 2nd mutually different channel codes. Each of said 1st channel code is related with one of said the 2nd channel code. A receiver Tire house keeping equipment equipped with memorizing the discernment data contained in the reaction signal, when said reaction signal is received and it is related with the 2nd channel code as which the 1st channel code contained in the reaction signal was chosen.

[Claim 2] It is equipment for supervising the condition of the tire of a car, and he is a commander. This commander The 1st selector which chooses the 1st one channel code from two or more 1st mutually different channel codes, They are having the 1st sending circuit which transmits the command signal containing the 1st selected channel code, and the transmitter formed in said tire. This transmitter The tire condition sensor which detects the condition of a tire, and the 1st memory which saves the discernment data of a proper, It has the 1st receiving circuit which receives the command signal from said commander, and the 2nd sending circuit which transmits a signal. According to said 1st receiving circuit receiving said command signal, the 2nd sending circuit transmits the reaction signal containing said discernment data in the 1st channel code contained in a command signal, and said 1st memory, It is the receiver formed in the car body of said car. This receiver The 2nd selector which chooses the 2nd one channel code from two or more 2nd mutually different channel codes, The 2nd receiving circuit which receives the signal from said transmitter, and the 2nd memory which memorizes the discernment data of said transmitter, When it has a controller, each of said 1st channel code is related with one of said the 2nd channel code and said 2nd receiving circuit receives said reaction signal, It is tire house keeping equipment equipped with said controller memorizing the discernment data contained in the reaction signal in said 2nd memory when related with the 2nd channel code as which the 1st channel code contained in the reaction signal was chosen.

[Claim 3] The 1st transmitting mode to which said transmitter transmits said reaction signal according to the command signal from said commander, The signal which has the 2nd transmitting mode which transmits a signal with regards to the command signal from a commander that there is nothing, and is transmitted according to the 2nd transmitting mode The data in which the tire condition detected by said tire condition sensor at least is shown, and said discernment data are included. Said receiver It has the 1st mode of operation which permits registration of said discernment data, and the 2nd mode of operation which does not permit registration of discernment data. In the 2nd mode of operation The controller of a receiver is tire house keeping equipment according to claim 2 which will read the data in which a tire condition is shown out of an input signal if the discernment data contained in the signal received from the transmitter are in agreement with the discernment data in said 2nd memory.

[Claim 4] Said 2nd selector is tire house keeping equipment according to claim 3 which also has the function which chooses the mode of operation of said receiver.

[Claim 5] Said commander is tire house keeping equipment given in any 1 term of claim 1 to claim 4 equipped with the transmitting switch operated in order to transmit said command signal.

[Claim 6] Said tire is one of two or more tires, and said transmitter is one of two or more transmitters formed in said tire, respectively. Said transmitting switch is one of two or more transmitting switches, and those transmitting switches are related with the location of said tire to a car, respectively. Said command signal The location code which shows the location of the tire related with the operated transmitting switch is included further. The controller of said receiver is tire house keeping equipment according to claim 5 which associates the discernment data and location code of each other which are contained in a reaction signal, and is memorized in said 2nd memory, including further the location code by which said reaction signal is included in said command signal.

[Claim 7] Said tire is one of two or more tires, and said transmitter is one of two or more transmitters formed in said tire, respectively. Said commander It has an assignment switch for specifying the location of the tire of the arbitration to a car. Said reaction signal contains further the location code contained in said command signal, including further the location code which shows the location of a tire where said command signal was specified. The controller of said receiver Tire house keeping equipment given in any 1 term of claim 2 to claim 5 which associates

the discernment data and location code of each other which are contained in a reaction signal, and is memorized in said 2nd memory.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the equipment for supervising the condition of the tire of a car.

[0002]

[Description of the Prior Art] The tire house keeping equipment which equips the patent reference 1 with two or more transmitters with which a tire is equipped, respectively, and one receiver with which a car body is equipped is indicated. A transmitter transmits the signal containing the pressure data obtained by measuring the pneumatic pressure of a corresponding tire, and the discernment data of the proper assigned by each transmitter, i.e., an ID code, to a receiver. A receiver is outputted to the drop in which the pressure data contained in said signal were prepared for example, in the vehicle interior of a room, when it collates the ID code contained in the signal with the ID code of each transmitter beforehand registered into the receiver and the ID code in agreement is registered into the receiver, if said signal is received.

[0003] In registering the ID code of each transmitter into a receiver in the above-mentioned supervisory equipment, the commander who can transmit a predetermined command is used for a transmitter at the time of arbitration. A transmitter will transmit an own ID code to a receiver, if said predetermined command is received. Therefore, if only it makes the receiver into the register mode which permits registration of the ID code of a transmitter, the ID code of a transmitter can be registered into a receiver at the time of arbitration.

[0004]

[Patent reference 1] JP,2000-153703,A [0005]

[Problem(s) to be Solved by the Invention] However, even if the receiver in register mode receives an ID code from the transmitter of the supervisory equipment carried in another car, it will register the ID code. Therefore, an ID code may be incorrect-registered when it exists near the car with which another car carrying supervisory equipment is set as the object of an ID code registration activity.

[0006] This invention is made in view of such the actual condition, and the place made into the purpose is to offer the tire house keeping equipment which can register the discernment data of a transmitter into a receiver correctly.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention according to claim 1 With the commander who transmits the command signal which is equipped with the 1st selector which chooses the 1st one channel code from two or more 1st mutually different channel codes, and contains the 1st selected channel code It is the transmitter formed in the tire of a car, and this transmitter is equipped with the tire condition sensor which detects the condition of a tire. A transmitter According to receiving said command signal, the reaction signal containing the discernment data of the proper given to the 1st channel code and transmitter which are contained in a command signal is transmitted, It is the receiver formed in the car body of said car. This receiver It has the 2nd selector which chooses the 2nd one channel code from two or more 2nd mutually different channel codes. Each of said 1st channel code is related with one of said the 2nd channel code. A receiver When said reaction signal is received and it is related with the 2nd channel code as which the 1st channel code contained in the reaction signal was chosen, it has memorizing the discernment data contained in the reaction signal.

[0008] Invention according to claim 2 is equipment for supervising the condition of the tire of a car, and is a commander. This commander The 1st selector which chooses the 1st one channel code from two or more 1st mutually different channel codes, They are having the 1st sending circuit which transmits the command signal containing the 1st selected channel code, and the transmitter formed in said tire. This transmitter The tire condition sensor which detects the condition of a tire, and the 1st memory which saves the discernment data of a proper, It has the 1st receiving circuit which receives the command signal from said commander, and the 2nd sending circuit which transmits a signal. According to said 1st receiving circuit receiving said command signal, the 2nd sending circuit transmits the reaction signal containing said discernment data in the 1st channel code contained in a command signal, and said 1st memory, It is the receiver formed in the car body of said car. This receiver The 2nd selector which chooses the 2nd one channel code from two or more 2nd mutually different channel codes, The 2nd receiving circuit which receives the signal from said transmitter, and the 2nd memory which memorizes the discernment data of said transmitter, When it has a controller, each of said 1st channel code is related with one of said the 2nd channel code and said 2nd receiving circuit receives said reaction signal, Said controller is equipped with memorizing the discernment data contained in the reaction signal in said 2nd memory when related with the 2nd

channel code as which the 1st channel code contained in the reaction signal was chosen.

[0009] Invention according to claim 3 is set to tire house keeping equipment according to claim 2. Said transmitter The 1st transmitting mode which transmits said reaction signal according to the command signal from said commander, The signal which has the 2nd transmitting mode which transmits a signal with regards to the command signal from a commander that there is nothing, and is transmitted according to the 2nd transmitting mode The data in which the tire condition detected by said tire condition sensor at least is shown, and said discernment data are included. Said receiver It has the 1st mode of operation which permits registration of said discernment data, and the 2nd mode of operation which does not permit registration of discernment data. In the 2nd mode of operation If the discernment data of the controller of a receiver contained in the signal received from the transmitter correspond with the discernment data in said 2nd memory, it will read the data in which a tire condition is shown out of an input signal.

[0010] Invention according to claim 4 also has the function in which said 2nd selector chooses the mode of operation of said receiver, in tire house keeping equipment according to claim 3. Invention according to claim 5 is equipped with the transmitting switch operated in order that said commander may transmit said command signal in tire house keeping equipment given in any 1 term of claim 1 to claim 4.

[0011] Invention according to claim 6 is set to tire house keeping equipment according to claim 5. Said tire is one of two or more tires, and said transmitter is one of two or more transmitters formed in said tire, respectively. Said transmitting switch is one of two or more transmitting switches, and those transmitting switches are related with the location of said tire to a car, respectively. Said command signal The location code which shows the location of the tire related with the operated transmitting switch is included further. Including further the location code by which said reaction signal is included in said command signal, the controller of said receiver associates the discernment data and location code of each other which are contained in a reaction signal, and memorizes them in said 2nd memory.

[0012] Invention according to claim 7 is set to tire house keeping equipment given in any 1 term of claim 2 to claim 5. Said tire is one of two or more tires, and said transmitter is one of two or more transmitters formed in said tire, respectively. Said commander It has an assignment switch for specifying the location of the tire of the arbitration to a car. Said reaction signal contains further the location code contained in said command signal, including further the location code which shows the location of a tire where said command signal was specified. The controller of said receiver The discernment data and location code of each other which are contained in a reaction signal are associated, and it memorizes in said 2nd memory.

[0013]

[Embodiment of the Invention] One operation gestalt of this invention is explained according to drawing 1 - drawing 5 R> 5. Drawing 1 shows the car 1 with which the tire house keeping equipment in this operation gestalt was carried. Supervisory equipment is equipped with two or more transmitters 3 with which the tire 2 of a car 1 was equipped, respectively, and the receiver 5 with which the car body 4 of a car 1 was equipped as shown in this drawing. Supervisory equipment consists of these transmitters 3 and a receiver 5, and a commander 6 (refer to drawing 2 and drawing 3).

[0014] Drawing 3 shows said commander 6. The commander 6 has ROM (read-only memory)10, the channel code configuration switch 11 as a selector, the control circuit 12, the transmitting switch 13, the sending circuit 14, and the transmitting antenna 15.

[0015] Said ROM10 has memorized the command data transmitted to each transmitter 3. This command data is used in order to make compulsory transmission perform to each transmitter 3. Said configuration switch 11 is operated in order to choose one channel code of arbitration from among two or more channel codes defined beforehand. With this operation gestalt, "four channel codes which consist of triplets, "001", "010", "011", and "100" are prepared. [for example,] The channel code which was chosen by the configuration switch 11, namely, was set up is outputted to said control circuit 12.

[0016] A control circuit 12 will output the transmitting command signal containing the command data memorized by ROM10 and the channel code set up by the configuration switch 11 to a sending circuit 14, if said transmitting switch 13 is turned ON.

[0017] A sending circuit 14 carries out wireless transmission of the transmitting command signal received from the control circuit 12 through the transmitting antenna 15. Drawing 2 shows said commander's 6 appearance. As shown in this drawing, the commander 6 was formed possible [a cellular phone] and has the square box-like case 16. Said transmitting antenna 15 is prolonged from the case 16. Said configuration switch 11 of a dial type and said transmitting push button-type switch 13 are formed in the front face of a case 16.

[0018] As shown in drawing 4 , said each transmitter 3 is equipped with the pressure sensor 20, the receiving circuit 21, the receiving antenna 22, ROM (read-only memory)23, the control circuit 24, RAM (random access memory)25, the sending circuit 26, and the transmitting antenna 27 as a tire condition sensor.

[0019] Said pressure sensor 20 measures the pneumatic pressure of the corresponding tire 2, and outputs the pressure data obtained by the measurement to said control circuit 24. It is beforehand memorized by said ROM23, the discernment data, i.e., the ID code, of a proper assigned by each transmitter 3.

[0020] A control circuit 24 outputs the data containing the ID code memorized by the pressure data received from the pressure sensor 20, and ROM23 to a sending circuit 26. A sending circuit 26 carries out wireless transmission of the signal containing the data through the transmitting antenna 27, after encoding and modulating the data sent from a control circuit 24.

[0021] A control circuit 24 makes measurement actuation perform to a pressure sensor 20 for every time interval defined beforehand. A control circuit 24 makes a periodical send action perform to a sending circuit 26 again, whenever the count of measurement of a pressure sensor 20 reaches a predetermined value (fixed transmitting mode). However, a control circuit 24 makes a send action perform to a sending circuit 26 immediately regardless of periodical transmission, when the abnormalities (sudden change of pneumatic pressure and fall of pneumatic pressure) of the pneumatic pressure of the corresponding tire 2 have been recognized (abnormality transmitting mode).

[0022] It receives through a receiving antenna 22 and said receiving circuit 21 outputs said transmitting command signal transmitted by said commander 6 to a control circuit 24. In addition, although not illustrated especially, a receiving antenna 22 is made to serve a double purpose from the wheel equipped with the tire 2 by the valve stem which projects outside. A control circuit 24 makes RAM25 memorize temporarily the channel code contained in the transmitting command signal, when a transmitting command signal is received. A control circuit 24 answers reception of this transmitting command signal, makes a send action perform to a sending circuit 26 again (compulsive transmitting mode), and eliminates the channel code in RAM25 immediately after that.

[0023] The detail of the signal transmitted from each transmitter 3 is explained. Even if it is which [of the above-mentioned fixed transmitting mode, an abnormality transmitting mode, and a compulsive transmitting mode] case, the sending signal from each transmitter 3 contains at least one data frame and two or more data frames which continue preferably. Each data frame contains two or more data, i.e., synchronous data, said channel code, said ID codes, said pressure data, electrical-potential-difference data, and error detecting codes. Synchronous data show the head of a corresponding data frame. Electrical-potential-difference data show the electrical-potential-difference value of the cell (not shown) which is the power source of a transmitter 3. Error detecting code is for making a receiver 5 judge whether an error exists in a corresponding data frame. In addition, two or more continuous data frames of all are the same. That is, each transmitter 3 carries out multiple-times continuation of the data frame containing two or more kinds of data described above between 1 time of a send action, and is transmitted.

[0024] At the time of transmission according to said compulsive transmitting mode, it is set as RAM25 as a channel code contained in said data frame any of "the channel code by which current storage is carried out, "001", "010", "011", and "100" they are. [i.e.,] That is, each transmitter 3 stores the channel code contained in the transmitting command signal received at the time of the compulsive transmission according to reception of the transmitting command signal from a commander 6 in a sending signal. On the other hand, at the time of transmission according to said fixed transmitting mode and an abnormality transmitting mode, a different code from the channel code set up in a commander 6 as a channel code contained in said data frame, "000", is set up. [for example,]

[0025] Each transmitter 3 may be equipped with the temperature sensor which measures the internal temperature of a tire 2 as a tire condition sensor. In this case, the data in which the measured temperature is shown are contained in said each data frame.

[0026] As shown in drawing 5, said receiver 5 is equipped with the channel code configuration switch 30 as a selector, a receiving circuit 31, a receiving antenna 32, the control circuit 33 as a controller, and memory 34.

[0027] Said configuration switch 30 is operated in order to choose one channel code of arbitration from among two or more channel codes defined beforehand. With this operation gestalt, "five channel codes which consist of triplets, "001", "010", "011", "100", and "000" are prepared. [for example,] The channel code which was chosen by the configuration switch 30, namely, was set up is outputted to said control circuit 33.

[0028] It receives through a receiving antenna 32 and said receiving circuit 31 outputs the signal transmitted from said transmitter 3 to a control circuit 33. When channel codes other than "000" are set as a receiver 5, a receiver 5 operates by ID code register mode. In this case, when the channel code contained in the signal received from the transmitter 3 is "000", the control circuit 33 of a receiver 5 interrupts processing after it, and returns to a reception standby condition. On the other hand, a control circuit 33 judges whether the channel code is in agreement with the channel code set as the receiver 5 by the configuration switch 30, when the channel code contained in the signal received from the transmitter 3 is "001", "010", "011" or, and "100." And when a channel code is in agreement, memory 34 is made to memorize the ID code contained in the input signal.

[0029] On the other hand, when the channel code of "000" is set as a receiver 5, a receiver 5 operates by pneumatic pressure supervision mode. In this case, the control circuit 33 of a receiver 5 judges whether the ID code contained in the signal from that transmitter 3 is in agreement with any of the ID code memorized by memory 34 they are regardless of the channel code contained in the signal received from the transmitter 3. And an input signal is processed when an ID code is in agreement. That is, a control circuit 33 outputs the pressure data contained in the input signal if needed to the drop 35 in which it was prepared in the vehicle interior of a room.

[0030] In the supervisory equipment of this operation gestalt, the activity which registers the ID code of a transmitter 3 into a receiver 5 is done as follows. First, a commander's 6 configuration switch 11 is operated and a predetermined channel code is set as a commander 6.

[0031] Next, the configuration switch 30 of a receiver 5 is operated and the same channel code as a commander's 6 channel code is set as a receiver 5. In this way, if the same channel code is assigned to a receiver 5 and a commander 6, a commander's 6 transmitting antenna 15 will be close brought near the receiving antenna 22 of the transmitter 3 to register an ID code, and a commander's 6 transmitting switch 13 will be turned ON. Then, the transmitting command signal containing command data and a channel code is transmitted by the commander 6. In addition, the radio field intensity of the transmitting command signal transmitted by the commander 6 is comparatively feeble, and is not received with transmitters 3 other than transmitter 3 which exists near a

commander's 6 transmitting antenna 15.

[0032] A transmitter 3 will transmit the signal containing the ID code memorized by the channel code contained in this signal, and ROM23, if the transmitting command signal from a commander 6 is received. A receiver 5 judges whether the channel code contained in this signal is in agreement with the channel code beforehand set as the receiver 5 by the configuration switch 30, and when in agreement, it makes memory 34 memorize the ID code contained in the signal, if said signal from a transmitter 3 is received.

[0033] The above activities are done one by one about all the transmitters 3 with which the car 1 was equipped. Consequently, the ID code of all the transmitters 3 is registered into a receiver 5. This operation gestalt has the following advantages.

[0034] - A receiver 5 does not memorize the ID code contained in this signal in memory 34, unless the channel code which is in agreement with the channel code beforehand set as the receiver 5 is contained in the received signal. Therefore, it can prevent effectively that the mistaken ID code is registered into a receiver 5.

[0035] - If only it assigns the same channel code to a receiver 5 and a commander 6, the ID code of a transmitter 3 can be easily registered into a receiver 5 by turning ON a commander's 6 transmitting switch 13 at the time of arbitration.

[0036] Said operation gestalt may be changed as follows. - As shown in drawing 6 and drawing 7, two or more transmitting switches 13A-13D may be prepared for a commander 6. Those switches 13A-13D correspond to the location of four tires 2 of a car 1, respectively. If each switch 13 is turned ON, said transmitting command signal which contains further the location code of the proper assigned by the switch 13 will be transmitted. The location code which a location code is a code which shows the location of a tire 2, for example, was assigned to switch 13A corresponding to the forward left tire 2 "00". The location code by which the location code by which the location code assigned to switch 13B corresponding to the forward right tire 2 was assigned to "01" and switch 13C corresponding to the left rear tire 2 was assigned to "10" and switch 13D corresponding to the right rear tire 2 is expressed with "11."

[0037] The transmitter 3 which received said transmitting command signal transmits the signal containing these channel codes and a location code while making RAM25 memorize temporarily the channel code and location code which are contained in a transmitting command signal. The receiver 5 in ID code register mode relates with an ID code the location code contained in the signal from a transmitter 3, and memorizes it in memory 34 while it memorizes the ID code contained in the signal from a transmitter 3 like the operation gestalt of drawing 1 - drawing 5 R in memory 34.

[0038] If it does in this way, the ID code of each transmitter 3 can be related with the positional information of the tire 2 with which the transmitter 3 was equipped, and can be registered into a receiver 5. Therefore, the receiver 5 in pneumatic pressure supervision mode can recognize the location of a tire 2 where it was equipped with the transmitter 3 of a sending agency, when a signal is received from a transmitter 3. The transmitting switches 13A-13D function as the assignment switch or assignment means for specifying the location of the tire 2 of the arbitration to a car 1.

[0039] - The signal transmitted when a transmitter 3 is a compulsive transmitting mode needs to contain neither pressure data nor electrical-potential-difference data that what is necessary is just to include the channel code and the ID code at least.

[0040] - Four channel codes set up by the commander 6 may differ from four channel codes set up with the receiver 5 in ID code register mode. That is, each of two or more channel codes set up by the commander 6 is beforehand related with one of two or more of the channel codes set up with a receiver 5. Both the associated channel codes differ mutually. And when the channel code contained in the signal from the transmitter 3 is related with the channel code set up with the receiver 5, the ID code contained in the signal from the transmitter 3 is registered into a receiver 5.

[0041] Next, the technical thought which can be grasped from said operation gestalt is indicated below.

It is equipment for supervising the condition of two or more tires with which the car was equipped, and he is the commander who can carry. (1) This commander The 1st selector which chooses the 1st one channel code from two or more 1st mutually different channel codes, It has the 1st sending circuit which transmits the command signal containing the location code which indicates the location of the 1st selected channel code and the specified tire to be an assignment means for specifying the location of the tire of the arbitration to a car, They are two or more transmitters formed in said tire, respectively. Each transmitter The tire condition sensor which detects the condition of a corresponding tire, and the 1st memory which saves the discernment data of a proper, It has the 1st receiving circuit which receives the command signal from said commander, and the 2nd sending circuit which transmits a signal. According to said 1st receiving circuit receiving said command signal, the 2nd sending circuit transmits the reaction signal which contains said discernment data in said 1st memory in the 1st channel code and location code list which are contained in a command signal, It is the receiver formed in the car body of said car. This receiver The 2nd selector which chooses the 2nd one channel code from two or more 2nd mutually different channel codes, The 2nd receiving circuit which receives the signal from said transmitter, and the 2nd memory which memorizes the discernment data of two or more of said transmitters, When it has a controller, each of said 1st channel code is the same as one of said the 2nd channel code and said 2nd receiving circuit receives said reaction signal, It is tire house keeping equipment equipped with what said controller associates the discernment data and location code of each other which are contained in the reaction signal in being in agreement with the 2nd channel code as which the 1st channel code contained in the reaction signal was chosen, and is memorized in said 2nd memory.

[0042] (2) For those transmitting switches, said assignment means is tire house keeping equipment given in the above (1) related with the location of said tire to a car, respectively including two or more transmitting switches operated in order to transmit said command signal.

[0043]

[Effect of the Invention] As explained in full detail above, according to this invention, the discernment data of a transmitter can be correctly registered into a receiver.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the equipment for supervising the condition of the tire of a car.

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PRIOR ART

[Description of the Prior Art] The tire house keeping equipment which equips the patent reference 1 with two or more transmitters with which a tire is equipped, respectively, and one receiver with which a car body is equipped is indicated. A transmitter transmits the signal containing the pressure data obtained by measuring the pneumatic pressure of a corresponding tire, and the discernment data of the proper assigned by each transmitter, i.e., an ID code, to a receiver. A receiver is outputted to the drop in which the pressure data contained in said signal were prepared for example, in the vehicle interior of a room, when it collates the ID code contained in the signal with the ID code of each transmitter beforehand registered into the receiver and the ID code in agreement is registered into the receiver, if said signal is received.

[0003] In registering the ID code of each transmitter into a receiver in the above-mentioned supervisory equipment, the commander who can transmit a predetermined command is used for a transmitter at the time of arbitration. A transmitter will transmit an own ID code to a receiver, if said predetermined command is received. Therefore, if only it makes the receiver into the register mode which permits registration of the ID code of a transmitter, the ID code of a transmitter can be registered into a receiver at the time of arbitration.

[0004]

[Patent reference 1] JP,2000-153703,A

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained in full detail above, according to this invention, the discernment data of a transmitter can be correctly registered into a receiver.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, even if the receiver in register mode receives an ID code from the transmitter of the supervisory equipment carried in another car, it will register the ID code. Therefore, an ID code may be incorrect-registered when it exists near the car with which another car carrying supervisory equipment is set as the object of an ID code registration activity.

[0006] This invention is made in view of such the actual condition, and the place made into the purpose is to offer the tire house keeping equipment which can register the discernment data of a transmitter into a receiver correctly.

[Translation done.]